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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,064	01/15/2002	Robert John Kopmeiners	4-16	5334

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EXAMINER

AGHDAM, FRESHTEH N

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/047,064

Applicant(s)

KOPMEINERS ET AL.

Examiner

Freshteh N. Aghdam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4 is/are rejected.
- 7) ☒ Claim(s) 2-3 and 5-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huttunen (US 2002/0010896), further in view of Hosur et al (US 6,977,910).

As to claim 1, Huttunen discloses a detection method in a receiver of a digital communication system for the detection of a symbol from a received signal, which signal is transmitted by a transmitter (Fig. 1), wherein the method utilizes PSK modulation scheme comprising: generating a set of reference symbols on the basis of a predetermined set (i.e. training signal Fig. 2; Par. 23) and a channel impulse response between the transmitter and the receiver (Par. 27-28); and comparing each of the received signal points with each of the reference points (i.e. symbols), and yielding a detected symbol for each point of the received signal (Par. 28, Pg. 4, Claim 7). Huttunen is not explicit about the predetermined set of symbols is PSK modulated.

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Hosur discloses a PSK transmission scheme employed by a communication system, wherein the predetermined set of symbols is PSK modulated (Col. 1, Lines 29-53).

Therefore, it would have been obvious to one of ordinary skill in the art to PSK modulate the predetermined set of symbols portion as well as data portion as taught by Hosur in order to improve system performance by increasing information capacity.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Critchlow (US 5,276,706), further in view of Yoshie et al (US 6,731,698), and Bar-David et al (US 5,623,511).

As to claim 4, Critchlow teaches a detection method using a receiver of a digital communication system for the detection of a symbol from a received signal (Fig. 1, means 24, 30, and 44), and wherein the method further comprises filtering the received signal with a filter which yields a filter signal (Col. 3, Lines 18-41; Col. 5, Lines 17-45; means 24), wherein the filter is a matched filter; the filter signal is compared with the predetermined set of symbols (means 36) in order to detect a symbol with the highest reliability (Fig. 1, means 44). Critchlow is silent about the filter is a match to the channel impulse response between the transmitter and the receiver (i.e. a channel matched filter); and each symbol of a predetermined set comprises a sequence of chips and each chip is PSK modulated. Yoshie teaches a digital communication system in which the predetermined set comprises a sequence of chips, wherein each of the chips is PSK modulated according to a selected modulation code (Fig. 5, synchronization word). Therefore, it would have been obvious to one of ordinary skill in the art to

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combine the teaching of Yoshie with Citchlow in order to determine synchronization by comparing a predetermined set of symbols (i.e. synchronization pattern or word) that is PSK modulated with the filtered. Bar-David discloses that the matched filter is a filter matched to the channel impulse response because the channel matched filter 660 will compensate for any phase shifts or amplitude distortion caused by the delay spread of the channel by convolving the correlated received signals with the channel estimate (Fig. 6, means 660). Therefore, it would have been obvious to one of ordinary skill in the art for the matched filter to be matched to the channel impulse response as taught by Bar-David for the reason stated above.

Allowable Subject Matter

Claims 2-3 and 5-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Halford et al 9US 6,614,836) see figure 8.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571)

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272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Freshteh Aghdam
Examiner
Art Unit 2611

March 15, 2007


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER